DEQ Hg TMDL Perspective

Overview

- TMDL general
- TMDL process – general
- TMDL process – Hg
- VA Hg TMDL projects
- National overview – focus on Hg TMDL approaches in MN, MA, MD
- Summary of where we are

TMDL general

- Definition of TMDL
  - Amount of a pollutant that a waterbdy can assimilate without violating water quality standards (wqs)
- WQS consist of designated uses with numeric and narrative criteria to protect them

TMDL general

- Water bodies listed as impaired for mercury violate WQS due to fish consumption advisory
  - →TMDL needed within 12 years of initial listing (2016 for 2004 listings of Dragon Run, Blackwater River and Feeder to Dismal Swamp, 2018 for new 2006 listings)

TMDL process – general

- Assess sources of pollutant of concern in watershed,
- Determine maximum loading through some type of analytical process e.g. modeling,
- Determine reductions needed from each source to meet maximum loading, and
- Develop source-specific allocations

TMDL process – general

- Implement using existing programs and regulatory authorities, reassess, adjust effort,…
- Expectation of success ~ 10 years (some sooner, some later depending on pollutant)

TMDL process – Hg

- Assessing pollutant sources includes watershed (incl. legacy issues) and airshed
- Analytical process includes near and far air sources and complex fate and transport processes

TMDL process – Hg

- Implementation requires coordination with air program and its requirements
- Complete success may not be achievable in 10 years (but drops in fish tissue concentrations have been seen in short periods of time)

VA Hg TMDL Projects

- 2 Hg advisory areas requiring TMDLs by 2010 under the federal court CD governing VA, both related to legacy problems
  - NF Holston River
  - South River/SF Shenandoah River
- Ongoing TMDL development project in the South River, USGS working in collaboration with Dupont, South River Science Team and DEQ

USGS Study Overview

- Characterize cycling of total mercury and methyl mercury
- Develop mathematical models for simulating surface water flows and methyl mercury production and transport
- TMDL completed by 2008

National Update

- Several Hg TMDLs approved nationwide
  - 242 listed specifically in EPA's data base
  - GA, LA, CO, MD…
  - Order of magnitude of Hg TMDLs
    - Prettyboy Reservoir in MD
    - ~ 100 mi^2 watershed => ~ 200 g/yr

National Update

- Recent update at a EPA R 3 workshop to discuss mercury TMDL development issues related to impairments due solely to air deposition
- Focus on MN, MA and MD

Northeastern Initiative

- MA (proposed TMDL alternative, not yet ok'd by EPA R 1 and unlikely to get ok'd by R 3)
  - comprehensive regional and state action plans to reduce mercury in air emissions have resulted in significant demonstrable reductions in Hg sources (e.g. 87% reduction since 2000 from med waste incinerators)
  - plans contain elements that exceed federal requirements and are being effectively implemented
  - use category 4 (TMDL not needed) as long as implementation continues (to date, 30-37% reduction in fish tissue concentrations)

Minnesota Approach

- MN (draft TMDL, not yet approved by EPA R 5)
  - developed 2 regional Hg TMDLs covering entire state (target 0.2 mg/kg – VA 0.5)
  - anthropogenic reduction factor 93 and 73% (baseline 1990)
  - reductions in air emissions to account for required reductions, to date at 70% mostly due to control of “product use and disposal”, remainder is ½ “energy” and ¼ “other” and ¼ “product use and disposal”

Maryland Status

- Several Hg TMDLs EPA-approved
  - Lawsuit on lack of specificity in source assessment
  - Working since 2002 on developing a "tagging" model to allow for quantification of loads from specific in-state vs. regional sources
    - REMSAD (NC, intensive)
    - CALPUF (MDNR)

Nationwide Initiatives

- No Hg TMDL submitted since 2002 due to ongoing technical and political issues
- VA Implication: Hg TMDL without source-specific allocation unlikely to be approved by EPA R 3

  → regional solution to air deposition issue?

Hg TMDL development in Virginia – Summary

- Legacy issues
  - Still evaluating TMDL format
  - Too early to tell what the EPA requirements will be in 2007/8
  - Some open questions:
    - Selection of end point (0.5 ppm Hg, 0.3 ppm Me-Hg, other?)
    - Treatment of air deposition, sediment, etc.

Hg TMDL development in Virginia – Summary

- Non-legacy issues
  - Same comments as above plus
    - Coordination with air program on utilities (Clean Air Mercury Rule)
      - 63% statewide Hg reduction expected by 2018
      - 6.4% by 2010 (numbers by EPA staff at recent Hg coordination meeting at R 3)
    - Air program coordination on other sources
      - "Maximum achievable control strategies"
    - Air allocations by facility, state, region,?
    - Pursue other options in the interim (proactive initiatives, regional TMDL)?

- DEQ TMDL web page
  - www.deq.virginia.gov/tmdl
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